

Practice: 381 - Silvopasture**Scenario: #1 - Commercial Thin & Est NTV Grasss****Scenario Description:**

Commercial thinning of an existing stand of trees followed by establishment of native grasses.

Before Situation:

10-acre pine plantation that is overstocked, with a basal area of 100 sq. ft. per acre. There is very little available forage for livestock, due to the dense shade of the tree canopy. Resource Concerns include Degraded Plant Condition - Undesirable Plant Productivity and Health, Inadequate Structure and Composition, Wildfire Hazard, Excessive Biomass Accumulation; Livestock Production Limitation - Inadequate Feed and Forage, and Inadequate Livestock Shelter.

After Situation:

The stand is thinned commercially to a basal area of 50 sq. ft. per acre, which will allow adequate sunlight to the forest floor for grass production, yet still provide shade and some protection from the elements for livestock and wildlife. Since thinning is done commercially, no harvesting costs are incurred. Debris is removed, all tree cutting will leave the shortest possible stump height. The soil is prepared for planting using chemical and mechanical means, then a mix of native warm-season grasses will be established, providing forage to livestock and wildlife. All Resource Concerns listed above are addressed.

Scenario Feature Measure: Acres of silvopasture established

Scenario Unit: Acre

Scenario Typical Size: 10

Scenario Cost: \$5,076.56

Scenario Cost/Unit: \$507.66

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Lime application	953	Lime application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$10.32	10	\$103.20
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	\$11.32	10	\$113.20
Chemical, ground application	948	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$6.23	10	\$62.30
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	\$21.70	10	\$217.00
Cultipacking	1100	Includes equipment, power unit and labor costs.	Acre	\$8.59	10	\$85.90
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$6.90	10	\$69.00
Labor						
Specialist Labor	235	Labor requiring a specialized skill set: Includes Agronomists, Foresters, Biologists, etc. to provide additional technical information during the planning and implementation of the practice. Does not include NRCS or TSP services.	Hour	\$99.77	8	\$798.16
Materials						
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	\$51.85	20	\$1,037.00
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.30	500	\$150.00
Three plus Species Mix, Warm Season, Native Perennial	2327	Native, warm season perennial grass. Includes material and shipping only.	Acre	\$205.56	10	\$2,055.60
Tree Marking Paint	313	Trees to be cut through tree marking are physically identified through the application of paint on the tree. Typically one quart of paint is used to mark one acre of trees. Includes materials and shipping only.	Acre	\$6.19	10	\$61.90
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$15.83	10	\$158.30

Materials

Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.33	500	\$165.00
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Practice: 381 - Silvopasture**Scenario: #2 - Commercial thinning & establishment of introduced grasses.****Scenario Description:**

Commercial thinning of an existing stand of trees followed by establishment of introduced grasses.

Before Situation:

10-acre pine plantation that is overstocked, with a basal area of 100 sq. ft. per acre. There is very little available forage for livestock, due to the dense shade of the tree canopy. Resource Concerns include Degraded Plant Condition - Undesirable Plant Productivity and Health, Inadequate Structure and Composition, Wildfire Hazard, Excessive Biomass Accumulation; Livestock Production Limitation - Inadequate Feed and Forage, and Inadequate Livestock Shelter.

After Situation:

The stand is thinned commercially to a basal area of 50 sq. ft. per acre, which will allow adequate sunlight to the forest floor for grass production, yet still provide shade and some protection from the elements for livestock and wildlife. Since thinning is done commercially, no harvesting costs are incurred. Debris is removed, all tree cutting will leave the shortest possible stump height. The soil is prepared for planting using chemical and mechanical means, then a mix of cool-season grasses and legumes will be established, providing forage to livestock and wildlife. All Resource Concerns listed above are addressed.

Scenario Feature Measure: Acres of silvopasture established

Scenario Unit: Acre

Scenario Typical Size: 10

Scenario Cost: \$847.00

Scenario Cost/Unit: \$84.70

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Materials						
Four Species Mix, Cool Season, Introduced Perennial (2 grasses, 2 legumes)	2317	Cool season grass and legume mix. Includes material and shipping only.	Acre	\$46.18	10	\$461.80
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.33	500	\$165.00
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$15.83	10	\$158.30
Tree Marking Paint	313	Trees to be cut through tree marking are physically identified through the application of paint on the tree. Typically one quart of paint is used to mark one acre of trees. Includes materials and shipping only.	Acre	\$6.19	10	\$61.90

Practice: 381 - Silvopasture**Scenario: #3 - Non-commercial thinning & establishment of native grasses.****Scenario Description:**

Non-commercial thinning of an existing stand of trees followed by establishment of native grasses.

Before Situation:

10-acre pine plantation that is overstocked, with a basal area of 100 sq. ft. per acre. There is very little available forage for livestock, due to the dense shade of the tree canopy. Resource Concerns include Degraded Plant Condition - Undesirable Plant Productivity and Health, Inadequate Structure and Composition, Wildfire Hazard, Excessive Biomass Accumulation; Livestock Production Limitation - Inadequate Feed and Forage, and Inadequate Livestock Shelter.

After Situation:

The stand is thinned non-commercially to a basal area of 50 sq. ft. per acre, which will allow adequate sunlight to the forest floor for grass production, yet still provide shade and some protection from the elements for livestock and wildlife. Debris is removed, all tree cutting will leave the shortest possible stump height. The soil is prepared for planting using chemical and mechanical means, then a mix of native warm-season grasses will be established, providing forage to livestock and wildlife. All Resource Concerns listed above are addressed.

Scenario Feature Measure: Acres of silvopasture established

Scenario Unit: Acre

Scenario Typical Size: 10

Scenario Cost: \$2,440.80

Scenario Cost/Unit: \$244.08

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Materials						
Three plus Species Mix, Warm Season, Native Perennial	2327	Native, warm season perennial grass. Includes material and shipping only.	Acre	\$205.56	10	\$2,055.60
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$15.83	10	\$158.30
Tree Marking Paint	313	Trees to be cut through tree marking are physically identified through the application of paint on the tree. Typically one quart of paint is used to mark one acre of trees. Includes materials and shipping only.	Acre	\$6.19	10	\$61.90
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.33	500	\$165.00

Practice: 381 - Silvopasture**Scenario: #4 - Non-commercial thinning & establishment of introduced grasses.****Scenario Description:**

Non-commercial thinning of an existing stand of trees followed by establishment of introduced grasses.

Before Situation:

10-acre pine plantation that is overstocked, with a basal area of 100 sq. ft. per acre. There is very little available forage for livestock, due to the dense shade of the tree canopy. Resource Concerns include Degraded Plant Condition - Undesirable Plant Productivity and Health, Inadequate Structure and Composition, Wildfire Hazard, Excessive Biomass Accumulation; Livestock Production Limitation - Inadequate Feed and Forage, and Inadequate Livestock Shelter.

After Situation:

The stand is thinned non-commercially to a basal area of 50 sq. ft. per acre, which will allow adequate sunlight to the forest floor for grass production, yet still provide shade and some protection from the elements for livestock and wildlife. Debris is removed, all tree cutting will leave the shortest possible stump height. The soil is prepared for planting using chemical and mechanical means, then a mix of cool-season grasses and legumes will be established, providing forage to livestock and wildlife. All Resource Concerns listed above are addressed.

Scenario Feature Measure: Acres of silvopasture established

Scenario Unit: Acre

Scenario Typical Size: 10

Scenario Cost: \$847.00

Scenario Cost/Unit: \$84.70

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Materials						
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$15.83	10	\$158.30
Tree Marking Paint	313	Trees to be cut through tree marking are physically identified through the application of paint on the tree. Typically one quart of paint is used to mark one acre of trees. Includes materials and shipping only.	Acre	\$6.19	10	\$61.90
Four Species Mix, Cool Season, Introduced Perennial (2 grasses, 2 legumes)	2317	Cool season grass and legume mix. Includes material and shipping only.	Acre	\$46.18	10	\$461.80
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.33	500	\$165.00

Practice: 381 - Silvopasture**Scenario: #5 - Native grasses established in existing tree stand****Scenario Description:**

Establishment of native grasses into an existing stand of trees that is already at an adequate density .

Before Situation:

10-acre pine plantation woodlot that has a basal area of 50 sq. ft. per acre. There is very little available forage for livestock, due to undesirable species in the understory. Resource Concerns include Degraded Plant Condition - Undesirable Plant Productivity and Health, Inadequate Structure and Composition; Livestock Production Limitation - Inadequate Feed and Forage.

After Situation:

The soil is prepared for planting using chemical and mechanical means, then a mix of native warm-season grasses will be established, providing forage to livestock and wildlife. All Resource Concerns listed above are addressed.

Scenario Feature Measure: Acres of silvopasture established

Scenario Unit: Acre

Scenario Typical Size: 10

Scenario Cost: \$2,378.90

Scenario Cost/Unit: \$237.89

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Materials						
Three plus Species Mix, Warm Season, Native Perennial	2327	Native, warm season perennial grass. Includes material and shipping only.	Acre	\$205.56	10	\$2,055.60
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.33	500	\$165.00
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$15.83	10	\$158.30

Practice: 381 - Silvopasture**Scenario: #6 - Introduced grasses established into existing tree stand****Scenario Description:**

Establishment of introduced grasses into an existing stand of trees that is already at an adequate density .

Before Situation:

10-acre pine plantation woodlot that has a basal area of 50 sq. ft. per acre. There is very little available forage for livestock, due to undesirable species in the understory. Resource Concerns include Degraded Plant Condition - Undesirable Plant Productivity and Health, Inadequate Structure and Composition; Livestock Production Limitation - Inadequate Feed and Forage.

After Situation:

The soil is prepared for planting using chemical and mechanical means, then a mix of cool-season grasses and legumes will be established, providing forage to livestock and wildlife. All Resource Concerns listed above are addressed.

Scenario Feature Measure: Acres of silvopasture established

Scenario Unit: Acre

Scenario Typical Size: 10

Scenario Cost: \$1,987.30

Scenario Cost/Unit: \$198.73

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
	93				40	
	104				60	
	112				20	
	92				40	

Equipment/Installation

Cultipacking	1100	Includes equipment, power unit and labor costs.	Acre	\$8.59	10	\$85.90
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	\$21.70	2	\$43.40
Lime application	953	Lime application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$10.32	10	\$103.20
Chemical, ground application	948	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$6.23	10	\$62.30
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$6.90	10	\$69.00
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	\$11.32	10	\$113.20

Materials

Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.30	500	\$150.00
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	\$51.85	20	\$1,037.00
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.33	500	\$165.00
Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$15.83	10	\$158.30

Practice: 381 - Silvopasture**Scenario: #7 - Tree and native grass establishment****Scenario Description:**

Establishment of trees and native grasses into a field that contains neither suitable forage nor suitable tree cover for a silvopasture system.

Before Situation:

10-acre old field without suitable forage for livestock nor tree cover. There is very little available forage for livestock, due to undesirable species in the understory. Resource Concerns include Degraded Plant Condition - Undesirable Plant Productivity and Health, Inadequate Structure and Composition; Livestock Production Limitation - Inadequate Feed and Forage, and Inadequate Livestock Shelter.

After Situation:

The site will be prepared using chemical and mechanical means, a mix of native warm-season grasses will be established, and then 200 hardwood trees per acre will be planted, providing forage to livestock and wildlife, and, in time, producing a viable wood products crop. Per the conservation practice standard, livestock grazing will be deferred until the trees reach adequate height to resist damage, or use exclusion measures are established. All Resource Concerns listed above are addressed.

Scenario Feature Measure: Acres of silvopasture established**Scenario Unit: Acre****Scenario Typical Size: 10****Scenario Cost: \$3,173.46****Scenario Cost/Unit: \$317.35****Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
	76				33	
	79				33	
	78				33	

Equipment/Installation

Chemical, ground application	948	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$6.23	10	\$62.30
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$6.90	10	\$69.00
Mechanical tree planter	1600	Mechanical tree planter. Requires a pulling unit of either tractor or small dozer depending upon site conditions. Does not include labor.	Hour	\$6.37	4	\$25.48
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	\$21.70	2	\$43.40
Tractor, agricultural, 60 HP	963	Agricultural tractor with horsepower range of 50 to 90. Equipment and power unit costs. Labor not included.	Hour	\$25.17	4	\$100.68
Cultipacking	1100	Includes equipment, power unit and labor costs.	Acre	\$8.59	10	\$85.90
Lime application	953	Lime application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$10.32	10	\$103.20
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	\$11.32	10	\$113.20

Materials

Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.33	500	\$165.00
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	\$51.85	20	\$1,037.00
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.30	500	\$150.00
Wire flags	1586	Small vinyl flags attached to wire stakes, typically, 36" in length, for marking tree rows	Each	\$0.09	2000	\$180.00
Tree, hardwood, seedling or transplant, bare root, 6-18"	1509	Bare root hardwood trees 6-18" tall. Includes materials and shipping only.	Each	\$0.44	2000	\$880.00

Materials

Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$15.83	10	\$158.30
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Practice: 381 - Silvopasture**Scenario: #8 - Tree and introduced grass establishment****Scenario Description:**

Establishment of trees and introduced grasses and legumes into a field that contains neither suitable forage nor suitable tree cover for a silvopasture system.

Before Situation:

10-acre old field without suitable forage for livestock nor tree cover. There is very little available forage for livestock, due to undesirable species in the understory. Resource Concerns include Degraded Plant Condition - Undesirable Plant Productivity and Health, Inadequate Structure and Composition; Livestock Production Limitation - Inadequate Feed and Forage, and Inadequate Livestock Shelter.

After Situation:

The site will be prepared using chemical and mechanical means, a mix of cool-season grasses and legumes will be established, and then 200 pine trees per acre will be planted, providing forage to livestock and wildlife, and, in time, producing a viable wood products crop. Per the conservation practice standard, livestock grazing will be deferred until the trees reach adequate height to resist damage, or use exclusion measures are established. All Resource Concerns listed above are addressed.

Scenario Feature Measure: Acres of silvopasture established

Scenario Unit: Acre

Scenario Typical Size: 10

Scenario Cost: \$3,133.46

Scenario Cost/Unit: \$313.35

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
	112				20	
	92				40	
	93				40	
	104				60	

Equipment/Installation

Lime application	953	Lime application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$10.32	10	\$103.20
Tractor, agricultural, 60 HP	963	Agricultural tractor with horsepower range of 50 to 90. Equipment and power unit costs. Labor not included.	Hour	\$25.17	4	\$100.68
Chemical, ground application	948	Chemical application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$6.23	10	\$62.30
Cultipacking	1100	Includes equipment, power unit and labor costs.	Acre	\$8.59	10	\$85.90
Seeding Operation, No Till/Grass Drill	960	No Till drill or grass drill for seeding. Includes equipment, power unit and labor costs.	Acre	\$21.70	2	\$43.40
Mechanical tree planter	1600	Mechanical tree planter. Requires a pulling unit of either tractor or small dozer depending upon site conditions. Does not include labor.	Hour	\$6.37	4	\$25.48
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$6.90	10	\$69.00
Tillage, Light	945	Includes light disking (tandem) or field cultivator. Includes equipment, power unit and labor costs.	Acre	\$11.32	10	\$113.20

Materials

Tree, conifer, seedling, bare root, 1-1	1513	Bare root conifer trees, 1-1 (2 years old). Includes materials and shipping only.	Each	\$0.42	2000	\$840.00
Potassium, K2O	74	K2O supplied by Muriate Of Potash. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.30	500	\$150.00
Lime, ENM	75	Fertilizer: Limestone Spread on field.	Ton	\$51.85	20	\$1,037.00
Phosphorus, P2O5	73	Price per pound of P2O5 supplied by Superphosphate. Price is not per pound of total product applied, no conversion is needed.	Pound	\$0.33	500	\$165.00

Materials

Herbicide, Glyphosate	334	A broad-spectrum, non-selective systemic herbicide. Refer to WIN-PST for product names and active ingredients. Includes materials and shipping only.	Acre	\$15.83	10	\$158.30
Wire flags	1586	Small vinyl flags attached to wire stakes, typically, 36" in length, for marking tree rows	Each	\$0.09	2000	\$180.00

Practice: 381 - Silvopasture**Scenario: #9 - Tree establishment****Scenario Description:**

Establishment of trees into an existing pasture that contains adequate native or introduced forage.

Before Situation:

10-acre pasture with suitable forage for livestock. There is very little protection from the elements (sun, wind, etc.) available to the livestock. Additionally, there are no long-term wood products being produced. Resource Concerns include Degraded Plant Condition - Undesirable Plant Productivity and Health, Inadequate Structure and Composition, Livestock Production Limitation - Inadequate Livestock Shelter.

After Situation:

The site will be prepared using Tree/Shrub Site Preparation (490), if needed, and then 200 pine trees per acre will be planted, providing shade and wind protection to livestock and wildlife, and, in time, producing a viable wood products crop. Per the conservation practice standard, livestock grazing will be deferred until the trees reach adequate height to resist damage, or use exclusion measures are established. All Resource Concerns listed above are addressed.

Scenario Feature Measure: Acres of silvopasture established

Scenario Unit: Acre

Scenario Typical Size: 10

Scenario Cost: \$1,215.16

Scenario Cost/Unit: \$121.52

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Mechanical tree planter	1600	Mechanical tree planter. Requires a pulling unit of either tractor or small dozer depending upon site conditions. Does not include labor.	Hour	\$6.37	4	\$25.48
Tractor, agricultural, 60 HP	963	Agricultural tractor with horsepower range of 50 to 90. Equipment and power unit costs. Labor not included.	Hour	\$25.17	4	\$100.68
Fertilizer, ground application, dry bulk	950	Dry bulk fertilizer application performed by ground equipment. Includes equipment, power unit and labor costs.	Acre	\$6.90	10	\$69.00
Materials						
Tree, conifer, seedling, bare root, 1-1	1513	Bare root conifer trees, 1-1 (2 years old). Includes materials and shipping only.	Each	\$0.42	2000	\$840.00
Wire flags	1586	Small vinyl flags attached to wire stakes, typically, 36" in length, for marking tree rows	Each	\$0.09	2000	\$180.00